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By:

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Patent
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : HERVÉ J. LAURENT
Serial No. : 09/660,686
Filing Date : September 13, 2000
For : ARRANGEMENT FOR RESEALING CARBONATED
BEVERAGE CONTAINERS
Examiner : POLLARD, S.
Group Art Unit : 3727

Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

In advance of the first office action the above-identified continuation application please amend the same as follows:

IN THE SPECIFICATION:

On Page 1, after the title insert the following:

-- CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of application serial no. 09/660,686 which itself was a continuation of application no. 09/221,461, now U.S. Patent 6,155,452. --

Page 12 change the second full paragraph starting "Fig. 7A illustrates..." to:

-- Fig. 7A illustrates certain dimensions and parameters of the can geometry which are important for the present invention. This includes the radius R_t which is the radius of the upper end of the inner surface 110 of the can rim 108 inside the groove formed in the top 102 of can 100, adjacent to the rim. The Radius R_b is the radius of the lower end of the inner surface 110. The space between these two radii is important since the outer sealing surface of the seal portion 16 must substantially lie between these two radii. --

IN THE CLAIMS:

Cancel claims 1-26 inclusive and substitute therefore the following claims:

--27. An arrangement for resealing a beverage container having a top with an aperture that can be opened to discharge the beverage, the arrangement comprising:

a main cap for engagement over the beverage container top for covering the beverage container top;

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a seal member hermetically connected to the main cap and extending toward the beverage container when the main cap is over the beverage container, the seal member having a free flexible pressure sealing portion adapted to engage against and hermetically seal with the beverage container, for resealing the aperture, the pressure sealing portion having an outer surface which, with the main cap engaged over the beverage container, lies at least partially against the container, and an exposed inner surface so that pressure from the beverage container acts on the inner surface of the pressure sealing portion and presses the outer surface of the sealing portion against the container to increase the hermetic sealing effect;

locking means connected to the main cap for removably fixing the main cap to the beverage container with sufficient force to resist pressure from, and to maintain pressure in the beverage container;

an opening through the main cap for discharging beverage from the beverage container; and

a secondary cap removable engaged with the main cap for closing the opening through the main cap with sufficient force to resist pressure from, and to maintain pressure in the beverage container.

28. An arrangement according to claim 27, for a beverage container having a rim and an outer bead on the rim, the locking means comprising latch means for engaging the bead.

29. An arrangement according to claim 28, wherein the locking means for engaging the bead comprise at least one arcuate hook for engaging under the bead and means for resiliently moving the arcuate hook for engaging under and disengaging from the bead.

30. An arrangement according to claim 27, wherein the main cap has an inner rim for engaging at least an upper part of the outer surface of the pressure sealing portion, the inner rim extending partially toward the inner surface of the container rim with the main cap engaged over the beverage container.

31. An arrangement according to claim 27, for a beverage container having a tab for opening the top of the beverage container, the main cap including a portion with an edge shaped to engage under the tab to help lift the tab and open the beverage container.

32. An arrangement according to claim 27, for a beverage container having a rim and an outer bead on the rim, the locking means comprising a pair of pivotally connected latches on opposite

sides of the main cap, each latch having a lower portion for hooking the outer bear and an upper projecting portion.

33. An arrangement according to claim 32, wherein the secondary cap has an outer diameter for engaging behind the upper projecting portions to prevent the latches from pivoting when the secondary cap is in a position to close the opening through the main cap.

34. An arrangement according to claim 32, wherein the secondary cap has an inner diameter for engaging around the outer surface of the latches for keeping the latches locked to the bead.

35. An arrangement according to claim 32, wherein each lower portion of the latches has a hook which extends around at least part of a circumference of the beverage container rim.

36. An arrangement according to claim 35, wherein each latch extends around about 90 degree to about 180 degree of the circumference of the bead.

37. An arrangement according to claim 35, wherein the main cap comprises a latch member which carries the latches, and a seal

support member which carries the seal member, the latch member and the seal support member, being connected to each other to form the main cap.

38. An arrangement according to claim 36, wherein the latch member includes a cylindrical portion and a platform extending in the cylindrical portion, the platform having an aperture therethrough for receiving part of the seal support member, and a plurality of slots extending in the cylindrical portion for defining at least one live hinge between the latches.

39. An arrangement according to claim 37, including grooves in the platform for defining part of the live hinge.

40. An arrangement according to claim 37, wherein the seal support portion has a conical projection which is hollow and which carries the opening through the main cap, the aperture in the latch member having at least one conical portion for locking the conical projection to fix the seal support member to the latch member.

41. An arrangement according to claim 27, wherein the free flexible sealing portion is annular and extends downwardly and inwardly with respect to the main cap.

42. An arrangement according to claim 40, wherein the annular flexible sealing portion is positioned to engage into a groove around the top of the beverage container and against the inner surface of the rim of the beverage container. --

REMARKS:

Claims 27-41 are in the case and presented for consideration.
Entry of this Amendment and favorable action is respectfully
requested.

Respectfully submitted,



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This application is a continuation of
application Serial no. 09/660,686 which
itself was a continuation of application
no. 09/221,461, now U.S. Patent 6,155,452.

ARRANGEMENT FOR RESEALING
CARBONATED BEVERAGE CONTAINERS

CROSS-REFERENCE TO RELATED
APPLICATIONS

FIELD AND BACKGROUND OF THE INVENTION

The present invention relates in general to beverage
containers, and in particular to a new and useful
arrangement for resealing a beverage container such as a
carbonated soda can.

Aluminum cans have been used to contain carbonated,
pressurized soda, beer or other pressurized beverages as
well as non-carbonated drinks for many years. Initially,
the cans were opened using a can opener which cut a
triangular hole into the upper surface of the can near its
rim. Later, tab openers were developed which included a
tab connected to a portion of the can cover, surrounded by
a weakening. The tab was pulled to dislodge the portion,
thus exposing an opening. Tabs were discarded and posed
a litter problem. The technology developed further to
produce attached tabs which were used as levers to rupture
a peripheral weakening and push a section of the can top
down into the can. The tab ripped away a portion of the
can top and permanently attached itself to the can so

top of the rim 108 of beverage container 100 when main cap 12 is screwed onto container 24 and actually presses the seal down.

5 Turning now to Figs. 7A to 7D, in Fig. 7A seal 14 is shown while the main cap (not shown) is still above the beverage container top 102.

10 Fig. 7A illustrates certain dimensions and parameters of the can geometry which are important for the present invention. This includes the radius R_t which is the radius of the upper end of the inner surface 110 of the can rim 108. *inside the groove formed in the top 102 of can 100, adjacent the rim.* The radius R_b is the radius of the lower end of the inner surface 110. The space between these two radii is important since the outer sealing surface of the seal portion 16 must substantially lie between these two radii.

15 Other important landmarks for the present invention include the angle A between the outer surface of the seal 14 and the inner surface 110 of the rim and the angle B between the outer surface of the seal and the central axis of the can. The angle A plus B is the total angle of the inner surface 110 of the can which is typically between 5°-30° and usually about 20° in most commercially available carbonated beverage cans.

20 For the present invention, the angle A can be as little as 0° where the outer surface of the seal portion 16 is parallel to the inner surface 110 of the can rim 108, or as much as 30° where the inner surface of the sealing portion 16 is substantially parallel to the axis of the can.

30 In absolute terms, the outer surface of the seal 16 can have an angle B, that is, the angle with the axis of about 0°-30°.

In the preferred embodiment of the seal, the angle A